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Panel PC
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Applications
Beyond Your Imagination and Experience



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Overview of PPC Applications

Applications
Beyond Your Imagination and Experience

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Applications Beyond Your Imagination and Experience

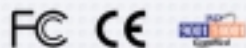
Since their introduction to the market, our Panel Computer series has been widely applied to industrial and non-industrial fields.

In the US, the 12.1" Panel Computer (PPC-123T) serves as a human-machine interface for an automatic prescription system. This system uses cutting-edge software and hardware integration in pharmacy automation technology to connect every aspect of the prescription cycle. The 12.1" Panel Computer is also used as an information terminal for music downloading kiosks in shopping centers throughout the country.

In Sweden, Advantech Panel Computers are integrated into a control unit for a hair root cooling system used during cytotoxic treatment in hair loss prevention. In Germany and Taiwan, our Panel Computers are selected as the core of a Digital Intraoral Image Processing System to provide real-time images for both dentist and patient. In the meantime, this system also serves as an entertainment terminal that plays music CDs and movies.

In Japan, Taiwan and the US where major semiconductor manufacturers are based, our products are used for sensitive and critical tasks. These include: a process-transaction system for a wafer manufacturer, an instruction-retrieval system for testing machines, and a process parameter input interface in the clean room at fabrication facilities. Panel Computers also function as the operator interface in the course of wafer production.

In Singapore, Advantech Panel Computers are located in elementary schools to enable students to order and pay for their food by using a smart card. These computers are used in enabling cashless transactions, such as transportation, attendance recording, facilities access and reservations, library usage and more.



Expand Your Integration Possibility

Advantech Panel Computers promise to open new opportunities by integrating computers with industrial and non-personal applications, and bringing computing to places and applications never imagined before. Their slim profiles, comprehensive functionality, high brightness LCDs, and user-friendly touchscreen make them the ideal solution for operator panels, information terminals, ecommerce terminals and human-machine interfaces.

Producing high-quality industrial products is Advantech's specialty. Our Panel Computers are built to last in unforgiving environments, such as factory automation facilities, production control points, warehouses and distribution centers, transportation control centers, stations, airports and even on refrigerators. As an ISO-9001 and ISO-14000 certified organization, Advantech abides by strict quality control standards applied to design, production and shipment. Panel Computers are subject to extensive testing prior to product release, including EMI, EMC, temperature and vibration testing, and exposure to dust and liquids.



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Monitoring & Process Control / Machine Automation

Application Stories



Industry Needs & Product Selection Tips

Introduction

Machine automation is a system that tracks and adjusts resource usage as needed.

Automated monitoring and process control in production cycle improves efficiency and productivity.

Predictive process control involves the ability to monitor and control a continuous material process in real time. This allows the conditions of the process to be quickly and responsively adjusted, and avoids the delays associated with monitoring the final product.

A hierarchy of LANs has also emerged, ranging from general to the more specialized, and from Ethernet to FDDI systems, each with its own specific usage.

The data handled is more than just a control data, it also includes a variety of operational and processing data, seeking to establish comprehensive systems that embrace both data systems and control systems.

It will be necessary to interconnect a variety of support systems (engineering support, operational support, diagnostic support, maintenance support, software development support, etc.) so as to form a data and control system capable of optimizing manufacturing throughout the plant. Client-server configurations are now being used for the functions.

Why PPC ?

PPC's compact design and multi I/O have expanded possibilities for control of the various devices by offering a central control platform.

PPC is used in monitoring system conditions and administration

Process monitoring, process control, automation, real-time operator interface and display, on-line analysis and networking are all parts of the function.

1. User-friendly interface

The user-friendly touchscreen has improved interfaces with operators, and enabled the operator to remotely control each device.

2. High reliability and maintainability

Industrial grade PPC secures high levels of reliability, and ease of continuous operation and maintainability, fulfilling all the requirements from this equipment.

3. Flexible system configuration

PPC for monitoring & process control can interconnect with business-computer systems, plant controllers, design systems, and a variety of others. The full set of network functions and multi-I/O can be used in flexibly configuring the required system or devices.

Suggested Models for This Field

Multi-functional Panel Computers - PPC-103T, PPC-123T, PPC-153T

Multi-functional panel computer series features multimedia devices, various connectors, and can be installed in virtually any application.

Fanless Panel Computers - PPC-105T, PPC-L126T

Fanless Panel Computer series are built in low power CPU and support embedded Windows CE embedded OS.



PPC-123T

Monitoring and Process Control in the Automobile Manufacturer



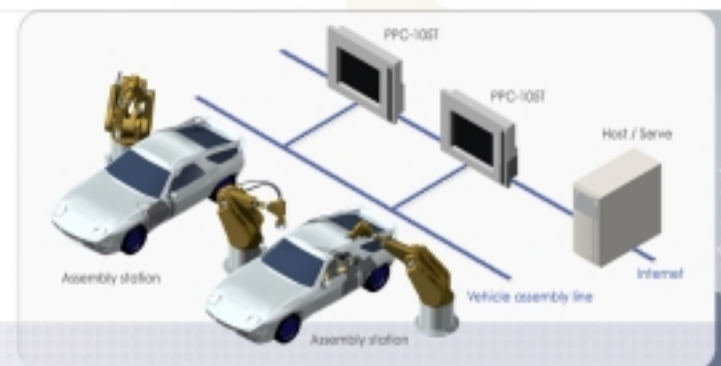
Solution

For this particular case, the system integrator designed and installed the PPC-105T as an error-proof detection system to monitor, display and record data in the assembly line. The Windows CE based PPC-105T allows operators to clearly view how each vehicle is assembled. During the fastening stage, data is collected and sent to the PPC-PPC-105T via Ethernet. This data is then tracked in a database and reported at the end of the line. This report quickly identifies and prevents any defects from leaving the factory until fixed.

System

System structure (software): OS / Windows® CE 3.0

System structure (hardware): PPC-105T is installed as an error-proof detection system to monitor, display and record data in the assembly line.



Benefits

- Compact-sized
- Customized backlight dimming function and high brightness TFT LCD in PPC-105T
- PPC-105T can be re-configured remotely via Ethernet; reducing maintenance costs.

Easy Data Processing and Storage



Location: Taiwan Customer: System Integrator

Introduction

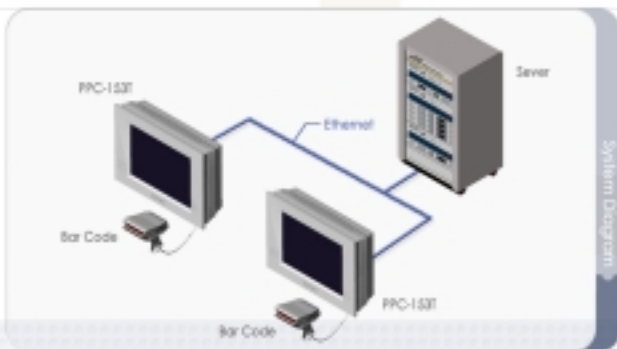
Strategically located in the heart of the Asian fab industry, Taiwan IC Makers are dedicated to the development of foundry service and DRAM technology. In a fully automatic production line of 300mm wafer production or DRAM production, operators need a well-developed information terminal that can be connected to the main system, allowing easy monitoring and controlling of every production stage.

Solution

The foundry service provider found the solution in Advantech's Panel PC. The slim profiles, comprehensive functionality, high brightness LCDs and user-friendly Advantech PPC-153T touchscreen make it an ideal human-machine interface. In this case, the PPC-153T was integrated into the CIM (Centre for Intelligent Machines) System; the host server is in charge of data processing and storage, while as the PPC-153T serves as an operating panel for commanding.

System

PPC-153T was connected to the host server through Ethernet, and the bar code reader was connected to PPC-153T. Operators can easily retrieve data with the touch panel of the PPC-153T and collect data by scanning the bar code on the wafer.



Benefits

- Industrial level PC: reliable performance and quality.
- Intuitive Control: The user can operate more easily with touchscreen.
- All-in-one design: compact size and space saving.
- Flexible mounting to fit all kinds of environment: panel mount, wall mount, swing arm and stand kit, etc.
- Powerful functions: 10/100 Base-T Ethernet On-board, 4 COM Ports, RS-232 x 3, RS-485, USB x 2 and PCMCIA.

The Ideal PC Controller for Large Textile Plants



Location: USA Customer: System Integration

Introduction

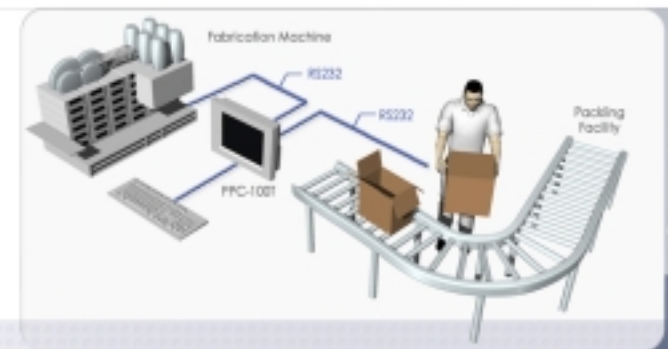
Before the upgrade to Advantech's PPC-100T, a textile plant in the United States was using a much more primitive PC-control system, which provided an interface between heavy-duty machinery plus equipment and the software inside the unit. It was expensive and large, therefore it could not be fitted into slim places. Furthermore, it tended to crash at times because it could not withstand the varying temperatures in the facility. As a result, shut-down time was considerable and the company got behind on its production of materials. The PPC-100T solved all of these problems.

Solution

Advantech's powerful and innovative PPC-100T unit handles all of the processing capabilities to help the plant run smoothly. With monitoring and processing capabilities and by utilizing the RS-232 communication protocol, the PPC-100T successfully runs a material manufacturing facility and a packaging facility in Georgia.

System

Using Wonderware's software as the integrated manufacturing management information system, the two (both software and hardware) run jointly a complete processing system. Wonderware provides the brains behind controlling the factory equipment and data collections and increases the productivity and profitability of the textile plant. PPC-100T was chosen for this application because of its touch screen capability, its user-friendly character, and its small size and rugged features.



Benefits

- Using the PPC-100T as a system controller presents the following major benefits: cost-effective, easy to maintain, high system performance, and advanced integration. The customer was able to easily install the slim Panel PC into a standalone 20" computer unit for specific processing needs in the facility. They chose to have the 19" slide-out rackmount keyboard, I/O termination, and additional touch screen capabilities.
- Apart from being small-sized and user-friendly, the PPC-100T is also durable enough to withstand higher temperatures, humidity, and dust. Its stainless steel shell protects and classifies the PPC-100T as a rugged industrial appliance.

Applications Stories

Robotic Technology in Pharmacy Automation



Location - USA Customer - Baker APS

Introduction

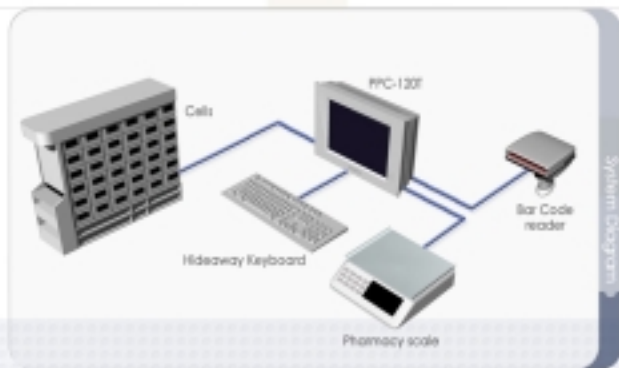
Baker APS, a product Division of McKesson HBOC, a multi-national industry leader in pharmacy automation and productivity, applied their extensive experience in mail-order and other high-volume pharmacy settings to develop Pharmacy 2000, a total pharmacy productivity-solution package. This system uses cutting-edge software integration and pharmacy automation technology to connect every aspect of the prescription cycle. Pharmacy 2000 allows a technician, rather than a pharmacist, to perform the manual tasks involved in prescription fulfillment. The pharmacist is then able to return to their core job functions of checking prescriptions, preventing drug interactions, answering patient questions, and providing better overall customer service.

Solution

Rather than being bound to the space restrictions of keyboard and mouse technology, Baker APS's system developers wanted to use space-saving benefits such as the integrated touchscreen technology found in Advantech's Panel PCs. Specifically, the Advantech PPC-120T was selected for its standard PC functions, as well as its color LCD display, compact size, cost savings, and swing-arm features. Above all, Baker APS's developers wanted to work with a company that offered a high level of confidence, and reliability. Also, it was necessary that the company they selected maintain a steady supply chain, so that the touchscreen and PC systems they initially purchased would be available for years to come. Today, the Pharmacy 2000 systems can be found in CVS Drugstores, Kroger Supermarkets, as well as numerous Army, Air Force, and veteran's hospitals and university hospitals and clinics in the United States.

System

Each Pharmacy 2000 system has a PPC-120T, which serves as a Human-Machine Interface (HMI) of the automatic prescription system.



Benefits

- The PPC-120T's compact size occupies approximately 12" of space, much less than the traditional PC system footprint.
- Panel PCs come with multiple mounting configurations, including swing arm, panel, and wall-mounted installations, preserving valuable desktop space.
- Touchscreen technology reduces the number of data entry errors by offering previously inputted options for technician to choose.
- The PPC-120T complies with FCC requirements.

Automatic Production Control of a Chicken Factory



Location - Switzerland Customer - SEG-POULETS AG

Introduction

SEG-POULETS AG in Zell (Switzerland) receives 6,000 chickens hourly for food processing. Every day, a total of 70,000 chickens are handled. To facilitate the 24-hour production, SEG-POULETS AG has 360 contract partners who deliver the chickens in a special logistic rhythm. One can surely imagine what will happen if one of the computers breaks down!

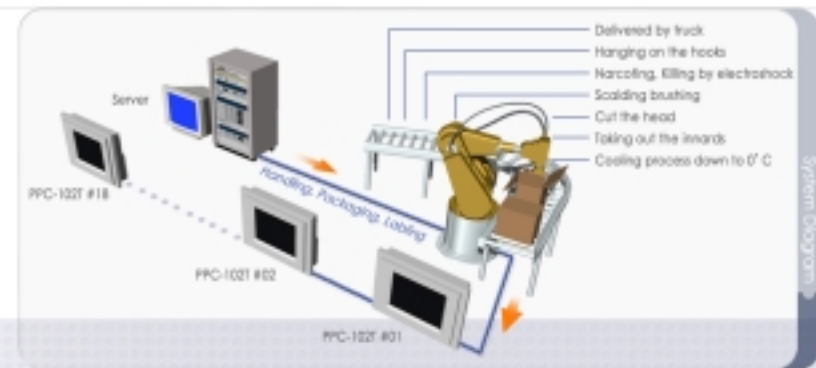
The chickens are processed in the following order: First, they are delivered by trucks. Afterwards, they are hung on hooks and electrocuted. Then, they are cleaned in hot water, de-plumed, decapitated and disemboweled. Consequently, the chickens are processed for food. After that, they are handled, packed, labeled and either stocked at -25° or shipped off to warehouses for fresh sales.

Solution

The whole production line is controlled by a main computer, which is connected to many workstations via a network. The main computer is fed by data flows from chicken suppliers, customer orders, as well as product specific data such as quality, weight, etc, from many different workstations. Specific customer demands are handled via the computerized production line, because not all customers require the whole chicken - some just want legs, the breasts or other parts.

System

Currently, the Handling / Packing / Labeling are controlled by 18 independent PPC-102T units, which are connected to the main computer through a network. The PPC-102T allows handling of the I/O via RS-232 or Ethernet, manages data input, and enables visualization of the process.



Benefits

- PPC-102T is a reliable human machine interface, which meets the requirements of any 24-hour production line.
- In the harsh environment of a chicken-processing factory, the IP 65 front panel protection is waterproof and the industrial specifications of the PPC-102T assure that the system works properly under low temperature.

Mechanically advanced Planarization System



Location : Japan Customer : System integrator

Introduction

Chemical Mechanical Polishing (CMP) has been widely used over the last few years for the planarization of DRAM's as well as microprocessors and ASIC's. Furthermore, as device dimensions continue to fall to 0.25 micron levels or below, and as many layers of materials have to be handled in advanced circuit processing, planarization by CMP has shifted from an optional processing method to a critical technology.

Since the system's control center was equipped with merely display functions and had no PC based CPU, it could not control all the devices. An operator had to manipulate every device - not the central administration. A separate administrator was required to collect data for operation.

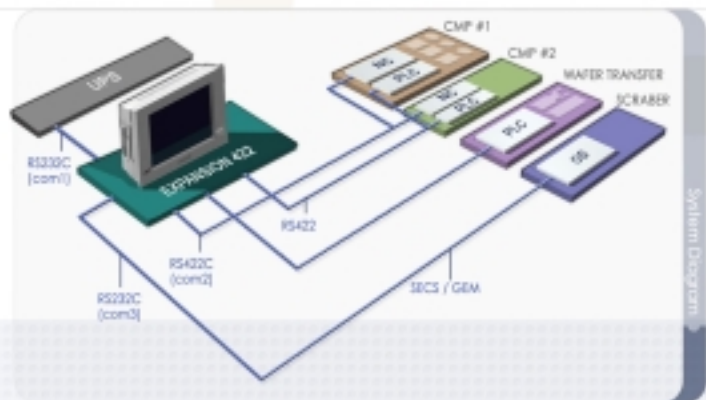
Solution

The PPC-120T's high performance has expanded possibilities for control of the various devices by offering a central control platform. Now, the operator uses the PPC-120T to monitor system conditions and administrate. The touchscreen has enabled the operator to remote control each device. This improvement has made factory administration much more efficient and has saved on costs.

System

System structure (software): OS/ Windows NT 4.0

System structure (hardware): PPC-120T with PCL-743B Dual port RS-422/485 interface card



Benefits

- Advantech's PPC-120T satisfies customer demands for compact-design, low-cost, and high-performance.

POI : Point of Information / KIOSK

Application Stories



Industry Needs & Product Selection Tips

Introduction

POI (Point of Information) / KIOSK lets users interact with its touchscreen, sound, and motion video. Using an attractive sound and graphic effects to lure people from a short distance, and the presentation in POI / KIOSK can be designed to simply loop through a video or a series of pages, to allow interaction and exploration. For example, POI / KIOSK are located near the entrances of shopping malls or department stores where they provide shoppers with directions. It is also used in trade shows and professional conferences. Via Internet connection, POI / KIOSK can display the latest content instantly, and according to different situation or environment, display different program.

Why PPC ?

PPC is suitable for POI / KIOSK because

1. Flexible Installation

PPC provides various installations (Wall Mount, Panel Mount, Rail Mount, Swing Arm, Stand, etc.) to meet every customers requirements.

2. Intuitive Operation with touchscreen

Compared with keyboard & mouse, touchscreen is a more convenient operating interface. With different environments or requirements, PPC offers different solutions like Resistive, Capacitive or SAW (Surface Acoustic Wave) Touchscreen.

3. Various I/O and Expansion

PPC provides various I/O ports like USB, Parallel port, COM port and PCI/ISA slot. Customers can easily integrate PPC with other device.

Suggested Models for This Field

Our recommended models for POI / KIOSK are:

- PPC-S123T :
Pentium® III processor-based UltraSlim™ Panel PC with 12.1" TFT LCD
- PPC-123T :
Pentium® III processor-based Panel PC with 12.1" TFT LCD
- PPC-S153T :
Pentium® III processor-based UltraSlim™ Panel PC with 15" TFT LCD
- PPC-153T :
Pentium® III processor-based Panel PC with 15" TFT LCD
- PPC-S154T :
Pentium® 4 processor-M based UltraSlim™ Panel PC with 15" TFT LCD
- PPC-174T :
Pentium® 4 processor-based Panel PC with 17" TFT LCD

PPC-153T



Applications Stories

Instantaneous Information Within Your Reach



Location: Singapore Customer: AUA

Introduction

Singapore's WOW (Wireless Online World) chose the PPC-S153T for its advertising point in supermarkets to synchronously link the inventory management system to the server through wireless data exchange. Besides providing vivid audio-video imaging, the PPC-S153T combines an attractive aesthetic design with super slim form factor.

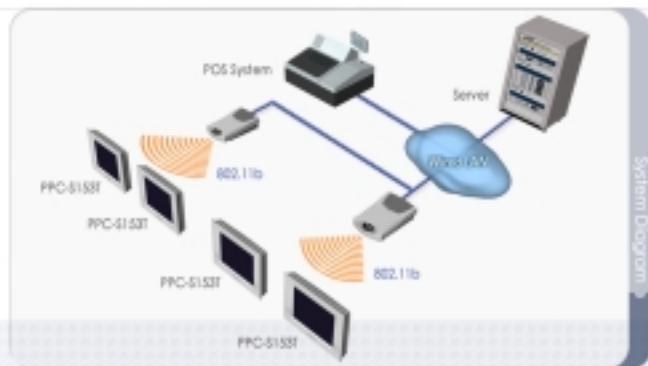
Solution

The PPC-S153T not only provides the latest product information to customers, but also helps storeowners simultaneously to track their stock level via the wireless interface, allowing real-time promotions to increase sales figures and get instant feedback from transactions, thus reducing total overall cost of ownership.

System

Customized to meet customers' requirements

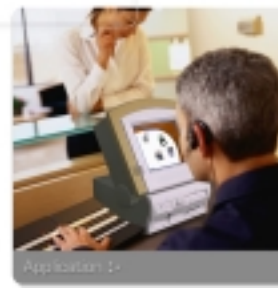
- Built-in 802.11b MINI PCI WLAN card
- Embedded Antenna
- Customized Logo
- Custom BIOS-power on after power failure



Benefits

- Ultra slim, measuring 49mm in depth
- Long term supply and high reliability
- Industrial grade
- Built-in 3D display engine for POI

Photo Processing Station Build Around Panel Computer



Location: Japan Customer: System Integrator

Introduction

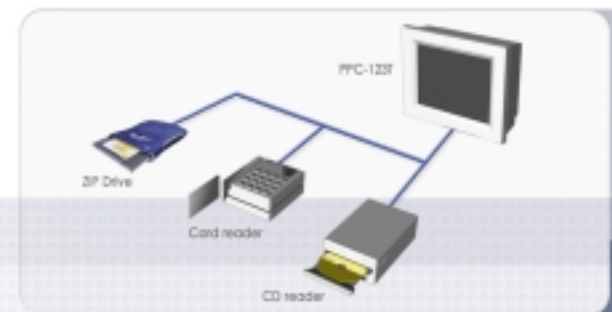
Advantech Co. Ltd., a leading e-platform partner providing vertical market solutions, used one of its standard-offer panel computers for a system integrator to answer the needs of a customer's state-of-the-art digital photo processing application. Used in the customer's photo processing stores, the digital photo station allows customers to transfer digital images and data from a variety of storage mediums (IC Card, CompactFlash®, Smart Media, Zip, CD/DVD, Sony Memory Stick) into the system, manipulate the images with their Windows-based proprietary software using a friendly touchscreen interface, then output the enhanced photo(s) onto high quality paper, e-mail the photos to a desired WWW location or be re-saved.

Solution

The Pentium III-based PPC-123T was chosen because of its high performance and full list of features, already approved European and US certifications, always on industrial proven reliability, expansion flexibility including PCI SCSI and PCMCIA and the ability to come with a pre-installed/configured Microsoft® Windows 2000 OS. The high brightness LCD touchscreen display, scalability, ability to seamlessly integrate into any networked environment along with the flexibility and compact size to physically fit application requirements, made the PPC-123T an attractive computing center to build this application around.

System

The system integrator that developed this photo-processing machine for this major client won the contract by quickly deploying hundreds of systems throughout Europe and the US. The PPC-123T is CE, FCC and UL approved, modular designed, all-in-one system with four serial ports, 2 USB ports, 2 PCMCIA slots and CD-ROM, and can stand alone with full PC capability. The OS was installed upon delivery, confirming system integrity and proper operation. They only needed to install the proprietary software, and integrate the PPC with the other part of the system (the external drives and SSD readers) using the serial ports and the PCI expansion slot for their high speed SCSI needs. The modular construction also makes system maintenance more efficient. The PPC-123T's LCD and faceplate can easily be removed and serviced. In this application, the PPC-123T was actually mounted into the custom-designed faceplate/cover. Fast time to market is a required element for any successful information appliance application; the PPC-123T demonstrates how Advantech helps customers solve their customers' technology and business needs



Benefits

- Industrial Grade: reliable performance and quality
- Intuitive Control: for user to operate the system easily
- All-in-one Design: compact size with various I/O

Applications Stories

Advantech Panel Computer Adds Excitement to Photo Imaging



Location : France Customer : Syntex Integrant

Introduction

A French multimedia company has come up with an innovative concept to cover events with personalized pictures. Photo Clic is a photography kiosk designed for professional or tourist events. This kiosk integrates a compact and powerful Advantech Panel Computer as its core system and friendly user interface.

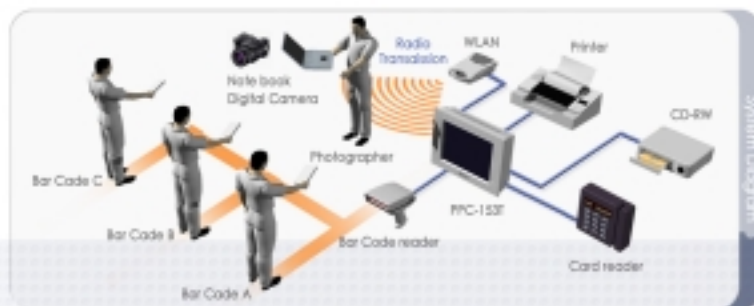
Solution

This is how Photo Clic works: a photographer takes pictures with a digital camera and a memory card compatible with the kiosk system. After each picture is taken, the photographer hands out a ticket to his customer. This ticket provides a bar code for picture identification. This ticket is also an advertisement to encourage the customer to come and view the picture at the kiosk at no extra obligation. In regular intervals, the photographer loads the memory card into the kiosk computing system for self-service photo consultation.

Using radio transmission, the photographer is able to send images without traveling between the kiosks. When the customers come to the kiosk, they use the bar code reader to scan their ticket. In a few seconds, the corresponding images appear on the screen. Once the on-screen icon on the Advantech touch Panel Computer is pressed, pictures can then be printed upon request. Payment can be done in cash or with a credit card. Customers can also choose to copy the picture to a CD-ROM.

System

The core component of this photo kiosk is a high performance touch Panel Computer by Advantech, the PPC-153T. This powerful computing platform features a 15" XGATFT LCD with an intuitive touchscreen. The peripherals connected to the PPC-153T include: a bar code reader, color printer, CD recorder and card reader.



Benefits

- Space saving and offers continuous operation capacity under harsh environments.
- The fully integrated I/O connectivity of the PPC-153T allows the kiosk system to be integrated with a wide range of peripherals, such as a bar code reader, credit card reader and CD recorder.
- The built-in touchscreen allows a friendly interface for users to easily operate this system.

Sony Employee Kiosk



Location : Malaysia Customer : Sony

Introduction

Sony is a leading manufacturer of audio, video, communications, and information technology products for the consumer and professional markets. Sony Malaysia has a TV and video products manufacturing plant, with over 4000 employees.

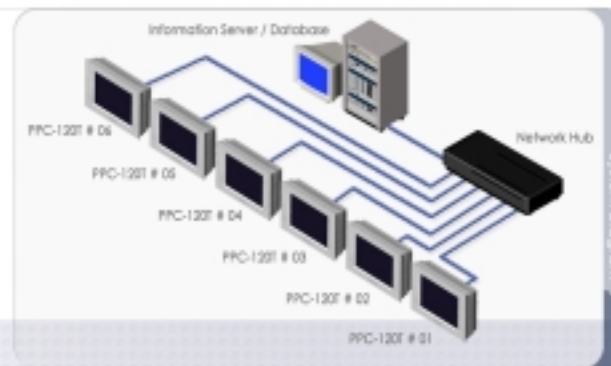
Sony Malaysia has a TV and video products manufacturing plant, with over 4000 employees.

Solution

Six PPC-120T units with touch screen were fitted into slim kiosk enclosures for employees to check on HR policies, apply for annual leave, check upcoming company events and access any other information on the company's server, which is regularly updated. The touchscreen is user-friendly: employees can simply key in their specific inquiries while a magnetic stripe reader on the kiosk verifies the employee's identity. When the kiosk is not in use, current production data is scrolled on the screen to keep employees updated.

System

Six PPC-120T units with Windows 95, panel mounted into a slim kiosk, with ID reader and network hub.



Benefits

- Space saving: slim footprint fits nicely into slim kiosks
- Ease of connectivity with Ethernet and readers using on-board ports
- Super bright LCD and high performance CPU meet customers' requirements
- Cost effective

Web Point X-Media



Location: Taiwan Customer: Web Point

Introduction

Customers come to convenience stores for consumer products, such as foods, drinks, newspapers, etc. People normally do not spend much time in these convenience stores. In order to attract and prolong people's visits, the Web Point built a multi-function information terminal - the X-Media - in over 1,000 chain stores in Taiwan.

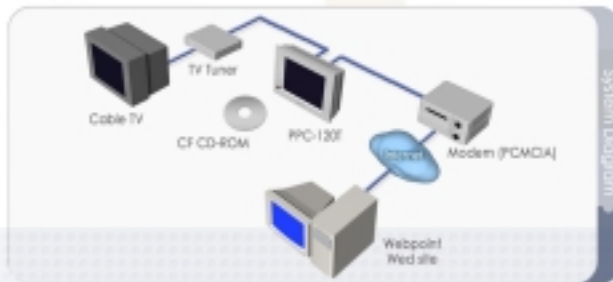
Solution

Combining Internet communication, visual application and system integration, X-Media covers real-time news, allowing people to monitor the stock market, weather reports, transportation, new products, and new trends. With on-site promotional information, customers can now quickly and easily select items that are just right for them. They have more freedom of choice and can purchase the right product at the right price. In addition, customers can also instantly enjoy regular entertainment at their convenience, including music videos and movie trailers.

The Advantech PPC-120T was selected as an information terminal for its powerful multimedia functions, such as on-board Ethernet, multiple I/O ports, built-in speakers, the 24x CD-ROM drive, and a 12.1" high-resolution color LCD display. Suspended from the overhead cigarette rack on cashier's counter, it provides 24-hour information to customers.

System

The system architecture consists of a panel PC, a control platform, a PCI TV tuner expansion card, a PCMCIA modem expansion card, and a website server. The system operates under Windows 95 and supports several application programs (APs), including a TV display, a commercial film (CF) CD-ROM, and an Internet link. The Internet link AP provides a news display and gives access to, amongst others, an information website owned by the software contractor. This website contains a wide variety of information for customers. The TV display AP enables the tuner card in the panel PC to select the desired channel and the CF CD-ROM carries movie clips, MTV and advertisements.



Benefits

- With over 1,000 locations throughout Taiwan, the X-Media effectively reaches people over 30 million times monthly.
- The PPC-120T has revolutionized what convenience stores can offer to the general public in Taiwan. It is no longer just a shop. It has become a one-stop facility where everybody's immediate need can be served.
- The compact and light PPC-120T is ideal for usage in space-limited convenience stores.

POS Point of sale

Application Stories



Industry Needs & Product Selection Tips

Introduction

Generally, a POS has as its core a personal computer, which is provided with application-specific programs and I/O devices for the particular environment in which it will serve. The POS system can include the ability to provide information, sell product or service, record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory. A POS for a restaurant, for example, is likely to have all menu items stored in a database that can be queried for information in a number of ways. POS are used in most industries that have a point of sale such as a service desk, including restaurants, lodging, entertainment, and museums.

POS is also Web-enabled, which makes remote training and operation possible, as well as inventory tracking across geographically-dispersed locations.

Why PPC ?

PPC is best candidate for POS because

1. Space Saving

With compact size, PPC can meet almost all the requirement upon limited space.

2. Intuitive Operation with Touchscreen

Compared with keyboard & mouse, touchscreen is a more convenient operating interface. With different environment or requirement, PPC offers different solution like resistive, capacitive or SAW (Surface Acoustic Wave) touchscreen.

3. Various I/O and Expansion

PPC provides various I/O port like USB, Parallel port, COM port and PCI/ISA slot. Customers can easily integrate PPC with other device.

Suggested Models for This Field

Our recommended models for POS are:

- PPC-105T : Panel PC GX1 300 with 10.4" TFT LCD
- PPC-103T : Pentium® III processor-based Panel PC with 10.4" TFT LCD
- PPC-S123T : Ultralim™ Panel PC Pentium® III based with 12.1" TFT LCD
- PPC-123T : Pentium® III based Panel PC with 12.1" TFT LCD
- PPC-153T : Pentium® III based Panel PC with 15" TFT LCD



PPC-105T

Self-serve Payment System



Location: USA Customer: Entrac Technologies Inc.

Introduction

Entrac Technologies Inc., the world leader in Self Serve Payment Systems, is using an Advantech Panel PC computing platform in one of their newest 24 x 7 self-serve payment kiosks. Used in major retail locations throughout the US and other countries, Entrac is capitalizing on the continued growth of the self-serve transaction market that is being driven by retailers' demand for new ways to more effectively serve customers.

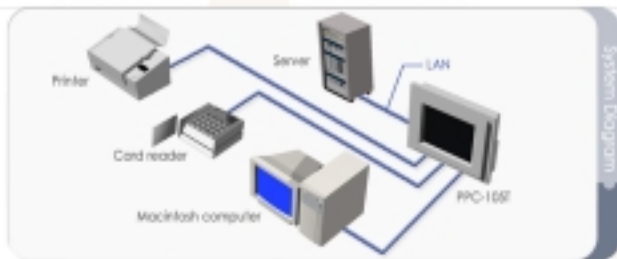
Solution

Advantech's industrial-proven panel computing platforms and services meet this market's demanding requirements. The Entrac ExpressPay kiosk can be found in many Kinkos 24-Hour copy centers. Kinkos uses the ExpressPay kiosks to provide self serve access control and payment systems for photocopiers, PCs and Macintosh computers. The system allows complete tracking of copies, time, applications, and prints utilizing credit cards, in-store charge cards, and in-store chip cards and coupons. Entrac provides monitoring of system status and troubleshooting that reduces onsite technical support, increasing overall system reliability and improving the customers' experience.

System

System structure (software): Windows® CE 3.0

System structure (hardware): PPC-105T connects card reader, printer and Macintosh Computer for monitoring system status and troubleshooting.



Benefits

- Reliability
Entrac chose the Advantech PPC-105T for its super-reliable, compact-sized platform, 10" TFT integrated LCD touchscreen, and fast time-to-market preinstalled Microsoft Windows CE 3.0 OS. Touchscreen integration was a major issue for Entrac. The ready to run PPC-105T offered obvious benefits when compared to a comparable kiosk assembled with separate SBC, touchscreen and peripherals. Touchscreen integration, OS installation and image porting and system testing literally add months to project development.
- Expedited Development
The PPC-105T offers a fully tested platform with all the needed features, ready to run. The preinstalled Windows CE 3.0 OS (on CompactFlash) provides great reliability. Since Windows CE OS/images are hardware specific, the PPC-105T comes fully tested, configured and ready for customers to load their Windows CE application. Integrating the NS Geode based fanless PPC-105T at the heart of Entrac's state of the art payment kiosks, expedited project development, eliminated system integration concerns and provide a tested software/hardware capable enough to handle the rigors of 24/7/365 use.

Advantech e-Lifestyle Kiosks in Singapore Secondary School



Location: Singapore Customer: Chowiz

Introduction

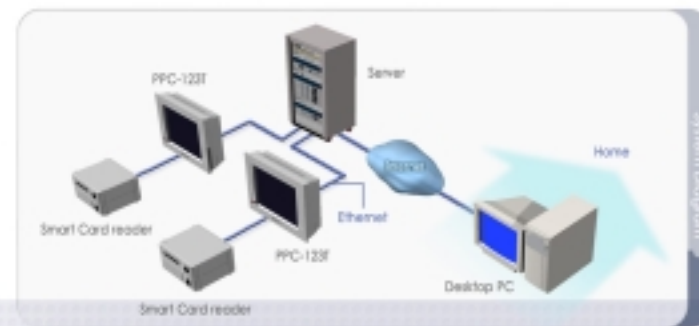
A Singaporean company, Chowiz, built the system to provide a good opportunity for students to learn about an e-lifestyle they will be exposed to in the digital economy. Advantech's PPC-123T Internet-based kiosk system is a dynamic addition to the education environment and can show parents various student activities. And if they do not like what their children are being exposed to, they can insist on having some changes made. A Singaporean company built the system to provide a hands-on opportunity for students to learn about the e-lifestyle that they will be exposed to in the new digital economy.

Solution

A secondary school in Sembawang, Singapore, started using the kiosk in November 2000. The students use the smart card issued by the Land Transport Authority (LTA) of Singapore as their Student Identification Pass (SIP) for cashless transactions, such as transportation, attendance, facilities access and reservations, library use, or purchases such as books, uniforms, stationery and more.

System

The school's eight snack bar stalls will have smart-card readers and touchscreen computers to take orders. No cash is accepted. Students will be able to buy things with only a stored-value smart card. From a password-protected interface, parents can view the nutritional value of their children's meals. They can also order their children's meal in advance. Internet-enabled touch Panel Computers are located within the school's compound to let students order and pay for their food while nutritional data, such as calories, is also recorded. In addition, students will also use the smart card to borrow library books and mark their attendance by swiping the cards through card readers at the school gate.



Benefits

Advantech's 12.1" Panel Computer with resistive touchscreen is integrated into this system as the operator interface and core system for data retrieval, input, record and transmission. The unit provides:

- A reliable platform that can perform continuous operation in public locations
- Slim profile to meet space restrictions within a school compound
- An easy-to-use interface that children can operate
- Network-ready capacity for data transmission via the Internet

Lottery Terminal Station



Location : China Customer : Shanghai Lottery Information System Ltd.

Introduction

Shanghai Lottery Information System Ltd. is a company that concentrates on developing, integrating, servicing and marketing computer lottery systems (hot-line and non hot-line), lottery terminals, lottery printers. It has a strong technical and management capability, combining more than forty people that include senior managers, technical and design specialist and project service engineers. It has extensive experience in system software design of lottery communication network platforms (communication mode: PSTN, ISDN, X.25, DDN, satellite) and the development of high quality lottery terminals. It has successfully built and run many hot-line lottery systems such as the Cambodia Kingdom "Fortune" lottery system and the Tibet Computer Welfare lottery system.

Solution

Lottery terminals are mainly used for selling lottery tickets, printing and uploading important data. When customers purchase lottery tickets, they first write a number on a card, which is then scanned into the lottery terminal, the lottery terminal then outputs the confirmation ticket to a printer, and then finally, uploads the number which the customer chose to the central database.

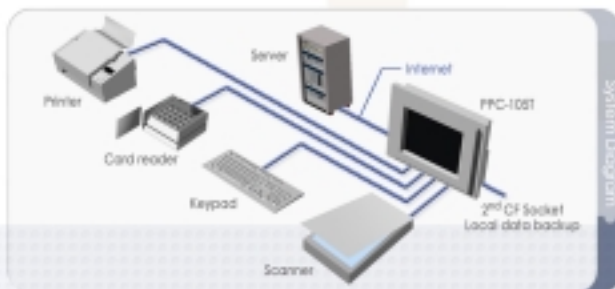
Lottery terminals typically need four serial ports, because of exterior devices such as printer, scanner, smart card reader and customer display screen are used. Because lottery data is very important, handling this data is a key issue. The method now used uploads data to the central database via Modem, PSTN, ISDN, X.25, DDN and so on. Terminals must make a local data backup as well. When communication lines have a problem, terminals can upload data to a mobile HDD for transfer.

Shanghai lottery information system Ltd. has adopted Advantech's PPC product. The PPC-105T used by Shanghai lottery is an 586-level LCD computer, with a 10.4" TFT display screen, optional touch screen, and abundant I/Os, such as four serial ports, two parallel ports, two USB, Ethernet and two SSD support slots. This hardware design perfectly matches the customer's system integration needs.

System

Software : Windows® CE 3.0

Hardware : 2nd CF socket for local data backup. External devices include keypad, printer, scanner can card reader. The data is transfer via Ethernet.



Benefits

- Abundant I/Os, allow fast system integration and peripheral support
- OEM design, satisfies customers unique SSD storage requirements
- Available touchscreen, follow customers application needs
- Win CE support, gives a robust and dependable OS, reducing maintenance and service calls

Major Music Retailers Roll Out New CD



Location : U.S.A Customer : System Integrator

Introduction

Computer technology is not only changing the way people acquire information, but also how they entertain. A custom-made compact disk that contains your favorite songs on one album seemed not feasible few years ago, but it's no longer the case. Hip music retailers, a digital music distributor, and a specialized computer maker have been recently teamed up to bring futuristic CD "Replicators" into malls throughout the United States.

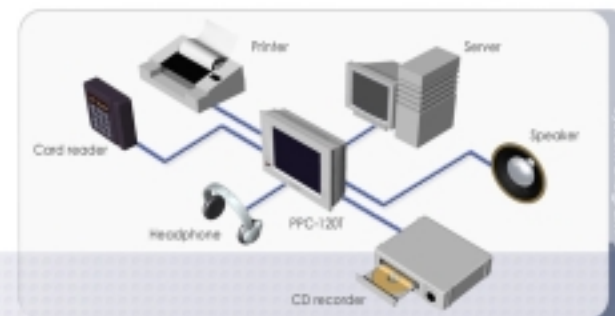
Solution

The new music delivery system lets customers have access to a huge off-site music database and download their selections into the store to record a CD on the spot. One of the advantages for the customers is that the local store will never "cut out" the album he wants. Retailers will like the system because it allows quick access to a huge "virtual inventory" and fewer lost sales.

Considered a "new millennium" phenomenon, test systems have made their debut in music retail chain stores since the beginning of the year. These include Music Town, Warehouse, Sam Goody's and Target stores in Los Angeles, San Diego and New York (Atlanta, Seattle, San Francisco, and other major metropolitan areas will be next).

System

The power behind much of the system is a specialized touchscreen Panel PC with 12.1" LCD display, the PPC-120T, made by Advantech. Customers can preview their selections in store kiosks and take their final choices to an Advantech station at the checkout counter. A clerk will run his or her fingers over a computer screen in a very Star Trek-like fashion and in less than 10 minutes a fresh CD, complete with color cover and liner notes, will be ready for the customer. The price is expected to be about the same as a pre-recorded CD.



Benefits

- The PPC-120T with touchscreen provides a user-friendly interface that easily allows customers to operate the system.
- Advantech's Panel PCs are developed to industrial-grade standards and handle harsh environments and continuous operation.
- The out-connected functions allow this product to nicely integrate with a wide range of peripherals, such as a card reader, speakers, thermal printer and etc

Transportation

Application Stories



Industry Needs & Product Selection Tips

Introduction

In the transportation industry, Global Positioning System (GPS) is widely used in survey, mapping, navigation, positioning, machine control and other applications.

Also, in warehouse application, a fork lift with a computing appliance could easily and real-time retrieve and access information as well as record and transmit the data through the wireless capacity of computing.

There is control platform for data processing and communication. All the data are transferred via Ethernet, fiber optic lines and spread spectrum radio.

The feature of transportation industry environment will be the vibration, shock, water and low temperature.

Why PPC ?

PPC is installed in vehicle, control room, and serves as an operator-friendly interface, data processing and communication computer. PPC is equipped with various type of touchscreen, the user-friendly touchscreen provides an on-screen menu, which allows easy access of information. The ruggedized PPC is designed specifically to withstand extreme vibration, dust and temperature. The unit's adjustable brightness control makes it suitable for night- and daytime work.

Suggested Models for This Field

PPC features high performance, various types of connectors and expansion slots:

PPC-103T :

Pentium® III processor-based Panel PC with 10.4" TFT LCD

PPC-123T :

Pentium® III processor-based Panel PC with 12.1" TFT LCD

PPC-153T :

Pentium® III processor-based Panel PC with 15" TFT LCD

PPC-L126T:

VIA Eden 667MHz processor-based Fanless Panel PC with 12.1" TFT LCD

PPC-S123T :

Pentium® III processor-based Ultraslim™ Panel PC with 12.1" TFT LCD

PPC-105T :

NS GX1 300 processor-based Fanless Panel PC with 10.4" TFT LCD

PPC-103T



Sailing Navigator



Location : Germany Customer : Yachting

Introduction

Since the introduction of electronic navigation systems and digitalized electronic charts, the demand for data processing on board of vessels and sailing yachts has highly increased. Yanacom's onboard PC solution, the latest development in navigation, weather routing and forecasting, satellite communication, electronic log books have all added to the need for a rugged compact Panel-PC hardware for onboard installation.

Solution

Yanacom onboard solution was designed to provide all benefits of PC technology that can be used on board of a vessel or sailing ship. Using Yanacom Navigation Software, the system acts as a fully integrated navigation center, able to interface with GPS, Decca, ARPA equipped Radar and other navigation instruments.

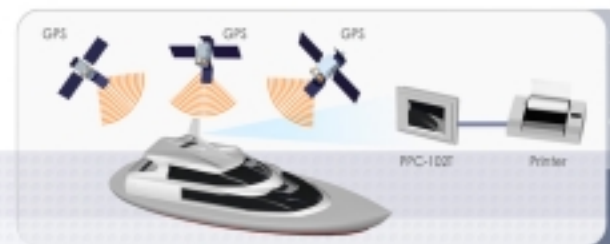
An optional monitor or fly-bridge repeater, keyboard and mouse connector are available for expansion. The hard disk is shock resistant, while the touchscreen is panel mounted in a splash-proof front (IP65). The Panel PC operates on 12 Volt or 24 Volt DC power supply for smaller vessels and sailing boats, or 100 ~ 250 Volt AC for larger vessel and yachts.

System

Advantech's PPC-102T sports remarkable characteristics: splash-proof front, compact and rugged design, four serial interfaces for GPS, echo sounder, speed log, auto piloting and other peripherals, printer port, touchscreen onscreen menu, and VGA-Output for an extra monitor. Needless to say, the system fulfilled most of the requirements.

A rugged 1.8" Industrial EIDE hard disk drive was used, allowing the PPC-102T to operate under the harshest conditions. The Panel PC could either be installed with 50 Watt 12 Volt or 24 Volt DC - converters, which were supplied by our Advantech Europe Division in Dusseldorf.

Yanacom Software uses digitized charts, which displays bright and TFT color display. The scale could be adjusted to the users' preferences. When linked to the GPS, the boat's latitude and longitude are displayed numerically and graphically along with the course and speed. Routes could be pre-planned on the touchscreen and saved for later use. Detailed information on all charted lights, buoys, beacons, rocks, wrecks, and many other elements were accessible within a finger touch.



Benefits

- The compact design allowed the PPC-102T to fit in any limited space on board of a vessel or sailing ship
- The user-friendly touchscreen provided an on-screen menu, which made information easy accessible.
- The IP 65 front panel protection ideally suited the sailing conditions

Panel Computers Offers Convenience and Efficiency



Location: Taiwan Customer: System integrator

Introduction

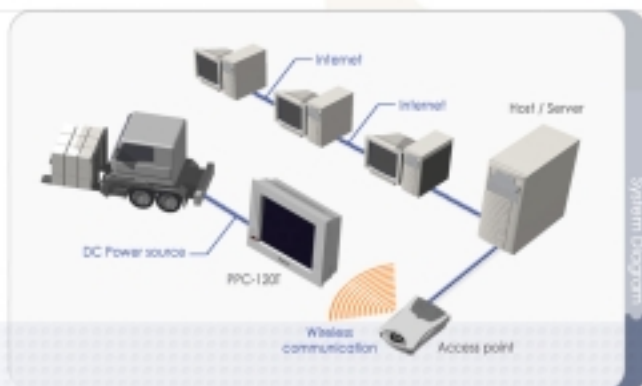
Panel computers offer convenient computing and connectivity. They can easily be mounted on a wide variety of vehicles, especially on forklifts. With this, operators can not only record any information changes without further paper work, but also deliver real-time information through to its logistics system.

Solution

The system integrator in Taiwan uses PPC-123T & PPC-120T DC models as vehicle panel computers due to their compact size so that it's quite easy to be installed on folk lift as well as the wireless functionality provided to control the management of warehouse inventory status. And since folk lift only can provide DC power source, PPC-123T & PPC-120T DC model offering various DC power, such as DC12V, DC24V, DC48V input just meet the requirement. Moreover, in this case, the customized and special-designed cradle connected between panel computer and folk lift provides a stable installation for vehicle mount.

System

A PPC-120T or PPC-123T DC model has been applied into a folk lift equipped with wireless capacity (PCMCIA wireless LAN card) to improve the logistic management more systematic and real-time.

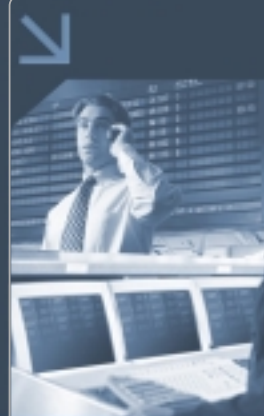


Benefits

- Compact enough to be mounted on a wide variety of vehicles
- Various power supplies to meet different vehicle demands
- Flexible installation, usability and mobility
- Wireless function and clear flat display for real-time management

Others

Application Stories



Industry Needs & Product Selection Tips

Introduction

Besides the major applications mentioned in the front sections, our Panel PC can also be applied in any system that needs an operating interface for information input and access, display monitoring or preview, data storage and retrieval, and of course, communicate with server, LAN, WAN through the internet function of PC. Thanks to the comprehensive functionality and connectivity of PC industry, our Panel PC is an integrated PC and really a nice interface to act as an operating center for the whole system.

For example, with the boom of multiple functional products (printers, peripherals), they get more and more complicated and versatile, a PC-like appliance is requested to control the large system more efficiently, that's a key role our Panel PC plays. Operators can give command and preview the content of the images through the Panel PC, even revise any content before formal printing in order to beautify the destination as well as permanently store these contents in servers through the Ethernet.

Why PPC ?

Customers requested a reliable, user-friendly, long-term supplying, and stylish PC. As mentioned above, the Panel PC is an integrated PC and a good interface for information communication. Equipped with an intuitive touchscreen and various connections, the Panel PC is suitable for operating interface and data access center. Moreover, with the industrial design in component and system, the Panel PC lasts 24 hours a day, 7 days a week without any problems. Customers can integrated our Panel PC into their systems without complicated modification.

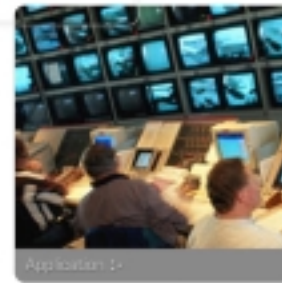
Suggested Models for This Field

Advantech offers a variety of Panel PCs. We provide three product lines for customers integration, such as multi-functional panel PC; fanless panel PC can meet various applications from all over the world.

PPC-L126T



Compact Enough to Fit Anywhere



Location : Australia Customer: Rediff Communications

Introduction

Having previously implemented the PPC-102T in their system, Redflex is once again using Advantech PPC series. This time, they have selected the PPC-103T for their Communications Systems Operator Interface for alarm monitoring and control, access to voice recorders and other equipment.

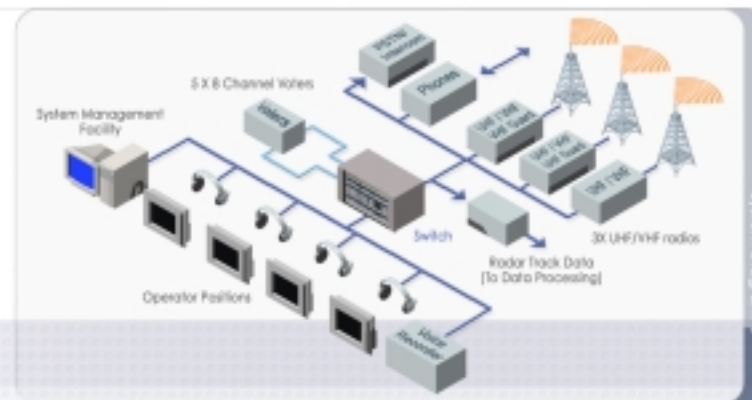
Advantech's PPC-150M was selected to meet requirements of a cardiac output monitoring system - safe for patient and clinician, accurate, continuous and real-time, useful and easy to interpret data, quick to set up and easy to use.

Solution

The PPC-103T currently runs Windows NT, but it is in the process of upgrading to Windows 2000 and XP. Ethernet connection is used in configuration and file transfer, program updates, and position status monitoring. All voice data is connected to the Switch via an audio interface module. All systems are equipped with a touchscreen that allows the operator to use the system with a customized Graphical User Interface.

System

The system block diagram shows how the Switch is connected to the Operator, and how radios, phones and other communications equipment are accessed.

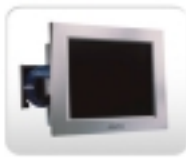


Benefits

The benefits of the PPC-103T are that these units are small and compact, and can be panel mounted. The integrated unit also reduces cabling. Its rugged specification protects against shock and vibration, making it highly suitable for military specifications.

- Reduces risk to patients
- Reduces length of patient stay
- Reduces cost of patient monitoring:
- Fast to set up (5 mins vs 40 mins for catheter)
- Performed whenever required

Product Spec Summary



Specifications

		PPC-174T	PPC-153T	PPC-123T	PPC-103T	PPC-L126T	PPC-105T	PPC-S154T	PPC-S153T	PPC-S123T
CPU Board		PCM-9680	PCM-9672	PCM-9672	PCM-9573	PCM-9671	PCM-5821	PCM-9681	PCM-9670	PCM-9573
Processor		Intel Pentium® 4 up to 3.06 GHz	Socket 370 Pentium® III & Celeron™ CPU up to 1.26 GHz	Socket 370 Pentium® III & Celeron™ CPU up to 1.26 GHz	Socket 370 Pentium® III & Celeron™ CPU to 850 MHz	VIA Eden 667 MHz on board	NS Geode GX1 300 MHz on board	Intel Pentium® 4-M up to 2.2 GHz (1.7 GHz on board)	Socket 370 Pentium® III & Celeron™ CPU to 1 GHz	Socket 370 Pentium® III & Celeron™ CPU to 850 MHz
Memory	Size	128 MB - 2GB DDR SDRAM	32 MB - 1 GB SDRAM	32 MB - 1 GB SDRAM	32 - 256 MB SDRAM	32 MB - 1 GB SDRAM	16 - 128 MB SDRAM (64 MB Built-in)	128 - 1GB DDR SDRAM (256MB built-in)	32 MB - 1 GB SDRAM	32 - 256 MB SDRAM
	Module Type	184 pin DIMM x 2	168 pin DIMM x 2	168 pin DIMM x 2	144 pin SODIMM x 2	168 pin DIMM x 2	144 pin SODIMM x 1	200 pin SODIMM x 2	144 pin SODIMM x 2	144 pin DIMM x 2
2nd Cache Memory		On-die 512 KB	On-die 256 KB or 512 KB	On-die 256 KB or 512 KB	On-die 256 KB	On-die 64 KB	On-die 512 KB	On-die 512 KB	On-die 256 KB	On-board 256 KB
SSD/Type		Supports 1 Internal CompactFlash™ Type II socket	N/A	N/A	Supports 1 Internal CompactFlash™ Type I socket	Supports 1 Internal CompactFlash™ type II socket	Supports 1 Internal CompactFlash™ Type I socket	Supports 1 Internal CompactFlash™ Type II socket	Supports 1 Internal CompactFlash™ Type I socket	Supports 1 Internal CompactFlash™ Type I socket
Display	Size/Type	17" TFT LCD	15" TFT LCD	12.1" TFT LCD	10.4" TFT LCD	12.1" TFT LCD	10" TFT LCD	15" TFT LCD	15" TFT LCD	12.1" TFT LCD
	Max. Resolution	1280 x 1024	1024 x 768	800 x 600	800 x 600	800 x 600	800 x 600	1024 x 768	1024 x 768	800 x 600
	Max. Colors	256 K or above	256 K or above	256 K or above	256 K	256 K	256 K	256 K	256 K or above	256 K or above
	Pixel Pitch (mm)	0.264 x 0.264	0.297 x 0.297	0.31 x 0.31	0.26 x 0.26	0.31 x 0.31	0.25 x 0.25	0.297 x 0.297	0.297 x 0.297	0.31 x 0.31
	Brightness (cd/m²)	260	250	300	250	200	170	200	250	250
	Viewing Angle	160°	120°	90° (min)	90°	90° (min)	100°	120°	120°	100°
	Brightness Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VGA	Simultaneous Mode	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	LCD Lifetime	50,000 hrs.	50,000 hrs.	50,000 hrs.	50,000 hrs.	50,000 hrs.	50,000 hrs.	50,000 hrs.	50,000 hrs.	50,000 hrs.
	Backlight MTBF	25,000 hrs.	25,000 hrs.	25,000 hrs.	20,000 hrs.	20,000 hrs.	20,000 hrs.	25,000 hrs.	25,000 hrs.	25,000 hrs.
	Chipset	Intel 845GV	VIA 8606 (Twister)	VIA 8606 (Twister)	SMI710	VIA 8606 (Twister)	NS CX 5530	Intel 845GV	SMI721	SMI710
HDD/Type	VRAM	32-64 MB (DVMT)	8-32 MB (UMA)	8-32 MB (UMA)	4 MB	8-32 MB (UMA)	2-4 MB	32-64 MB (DVMT)	4 MB	4 MB
		One 3.5" drive	One 2.5" drive	One 2.5" drive	One 2.5" drive	One 2.5" drive	One 2.5" drive	One 2.5" drive	One 2.5" drive	One 2.5" drive
FDD/Type		One built-in 3.5" drive	One built-in 3.5" drive	One built-in 3.5" drive	Support one external FDD connector	N/A	Support one external FDD connector	One built-in 3.5" drive	One built-in 3.5" drive	1 external FDD connector
PCMCIA Slot		Support Type II x 2 or Type III x 1	Support Type II x 2 or Type III x 1	Support Type II x 2 or Type III x 1	N/A	N/A	N/A	N/A	N/A	N/A
CD-ROM Drive		One built-in drive, 24X or above	One built-in drive, 24X or above	One built-in drive, 24X or above	One external IDE connector	One built-in drive, 24X or above	One external IDE connector	One built-in drive, 24X or above	One built-in drive, 24X or above	1 external IDE connector
DVD-ROM Drive Option		Yes	Yes	Yes	One external IDE connector	Yes	N/A	Yes	Yes	1 external IDE connector
I/O Port		3 COM ports, 1 parallel port, 4 USB ports(V2.0), PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, S-Video port	4 COM ports, 1 parallel port, 2 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, game port	4 COM ports, 1 parallel port, 2 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, game port	4 COM ports, 1 parallel port, 2 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, game port	4 COM ports, 1 parallel port, 2 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, game port	4 COM ports, 1 parallel port, 2 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, game port	2 COM ports, 4 USB ports, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, S-Video port for option	2 COM ports, 1 parallel port, 4 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, S-Video port for option	4 COM ports, 1 parallel port, 2 USB, PS/2 mouse & K/B, Mic-in/Line-in/Line-out, VGA port, game port
Bus Expansion		2 PCI slots	1 PCI/ISA slot	1 PCI/ISA slot	1 PCI/ISA slot (optional)	1 PCI/ISA slot (optional), 1 Mini PCI socket	1 PCI/ISA slot (optional)	1 Mini PCI Socket	1 Mini PCI Socket	1 PCI/ISA slot (optional)
Network (LAN)		10/100 Base-T Ethernet (Gigabit Optional)	10/100 Base-T Ethernet	10/100 Base-T Ethernet	10/100 Base-T Ethernet	10/100 Base-T Ethernet	10/100 Base-T Ethernet	10/100 Base-T Ethernet (Gigabit optional)	10/100 Base-T Ethernet	10/100 Base-T Ethernet
IrDA Transmission		N/A	N/A	Yes	N/A	N/A	N/A	Yes	Yes	N/A
Power	Output Rating	200W	74W / 80W	74W / 80W	60W / 65W / 75W	60 W	60W/75W/65W	70 W	60 W	60 W
	Input Voltage	(115-230V~@50-60Hz)	(100-250V~@50-60Hz) / 12/24/48V~	(100-250V~@50-60Hz) / 12/24/48V~	(100-250V~@50-60Hz) / 12/24V~	24Vdc	100 - 250 V~ / 50 - 60 Hz / 24V~ / 12V~	24V~	24V~	24V~
	Safety	UL, CSA, CE, FCC, TUV	UL, CSA, CE, TUV	UL, CSA, CE, TUV	UL, CSA, CE, TUV	N/A	UL, CSA, CE, TUV / N/A	N/A	N/A	N/A
	Technology	Resistive / Capacitive / SAW	Analog resistive / Capacitive / SAW	Analog resistive / Capacitive	Analog resistive	Analog resistive	Resistive	Resistive	Analog resistive	Analog resistive
Touchscreen	Control Port	RS-232 (COM 4)	RS-232 (COM 4)	RS-232 (COM 4)	RS-232 (COM 4)	RS-232 (COM 4)	RS-232 (COM 4)	RS-232 (COM 4)	PS/2	RS-232 (COM 4)
	Light Transmission	75% (Resistive) / 85% (Capacitive) / 91% (SAW)	75% (Resistive) / 85% (Capacitive) / 91% (SAW)	75% (Resistive) / 85% (Capacitive)	75%	75%	75%	75%	75%	75%
OS Support		Windows® 95 / 98 / ME / 2000 / XP, DOS	Windows® 95 / 98 / ME / NT / 2000 / XP, DOS	Windows® 95 / 98 / ME / NT / 2000 / XP, DOS	Windows® 95 / 98 / ME / NT / 2000 / XP, DOS	Windows® 98 / ME / NT / 2000 / XP, DOS	Windows® 95 / 98 / ME / NT / DOS	Windows® 95 / 98 / ME / 2000 / XP, DOS	Windows® 95 / 98 / ME / 2000, DOS / XP	Windows® 95 / 98 / ME / NT / 2000, DOS / XP
Watchdog Timer		62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	62-level, 1 to 62 seconds	63-level, 1 to 63 seconds
Working Temperature		0 - 45°C (32 - 113°F)	0 - 45°C (32 - 113°F)	0 - 45°C (32 - 113°F)	0 - 45°C (32 - 113°F)	0 - 40°C (32 - 104°F)	0 - 40°C (32 - 104°F)	0 - 45°C (32 - 113°F)	0 - 45°C (32 - 113°F)	0 - 45°C (32 - 113°F)
Front Panel Protection		NEMA 4 / IP65 compliant (systems with SAW, T/S excluded)	NEMA 4 / IP65 compliant (systems with SAW, T/S excluded)	NEMA 4 / IP65 compliant	NEMA 4 / IP65 compliant	NEMA 4 / IP65 compliant	NEMA 4 / IP65 compliant	NEMA 4 / IP65 compliant	NEMA 4 / IP65 compliant	NEMA 4 / IP65 compliant
Certificate		BSMI, VCCI, UL, CE, FCC Class B	BSMI, VCCI, UL, CE, FCC Class B	BSMI, VCCI, UL, CE, FCC Class B	VCCI, UL, CE, FCC Class B	BSMI, VCCI, UL, CE, FCC Class B	UL, CE, FCC Class B	UL, CE, FCC Class B, VCCI	UL, CE, FCC Class B, VCCI	UL, CE, FCC Class B
Dimensions (W x H x D)		446 x 382 x 127 mm (17.56" x 15.04" x 5")	426 x 323 x 106 mm (16.54" x 12.72" x 4.17")	375 x 265 x 104.4 mm (14.76" x 10.41" x 4.11")	345 x 265 x 92.4 mm (13.56" x 10.41" x 3.64")	340.5 x 269.3 x 70.5 mm (13.41" x 10.61" x 2.78")	342.5 x 265 x 92.4 mm (13.56" x 10.41" x 3.64")	375 x 299 x 49mm (14.76" x 11.77" x 1.93")	375 x 299 x 49mm (14.76" x 11.77" x 1.93")	311 x 237 x 54.5 mm (12.24" x 9.33" x 2.15")
Weight		10.5 kg (23 lbs)	6.5 kg (14.3 lbs)	5.2 kg (11.5 lbs)	3.5 kg (7.7 lbs)	3.25 kg (7.15 lbs)	3.2 kg (7.1 lbs)	4.9 kg (10.78 lbs)	4.9 kg (10.78 lbs)	5.2 kg (11.5 lbs)

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